

## Kundendienstblatt/Service Chart K 62/0-1

Chassis 411

Geräte: METZ belform 115  
METZ belform 110

Baujahr 1962/63

Year of Production 1962/63



TELEVISION · RADIO · PHOTO · FUERTH / BAV. - GERMANY

### Rundfunk-Chassis METZ 411 / METZ-belform 115 + METZ-belform 110 Radio chassis METZ 411 / METZ-belform 115 + METZ-belform 110

	Technische Daten	Technical details (USA version)
Stromart current	Wechselstrom	A/C
Spannung voltage	110/125/160/220/240 Volt	110 Volts
Leistungsaufnahme power consumption	ca. 90 Watt	approx. 90 Watts
Sicherung (Netz) fuse (AC)	0,6 A träge	1,2 amps slow-blow (110 Volts)
Sicherung (Anode) fuse (anode)	0,2 A mittelträge	0,2 amps slow-blow
Skalenlampen dial lamps	2x 7 V 0,3 A	2x 7 V 0,3 amps
Röhrenbestückung valves	ECC 85; ECH 81; EF 85; ECC 83; ECC 83; ECC 83; ELL 80; ELL 80; EM 84; für Multiplexteil *: EC 92, EF 94	6AQ8; 6AJ8; 6BY7; 12AX7; 12AX7; 12AX7; 6HU8; 6HU8; 6FG6; for Multiplex part: 6AB4; 6AU6
Dioden diodes	K 5/5 M; K 5/105; K 5/105	K 5/5 M; K 5/105; K 5/105
Gleichrichter rectifier	B 250 C 250	B 250 C 250
Anzahl der Kreise number of circuits	9 FM-Kreise; 6 AM-Kreise	9 FM-circuits; 6 AM-circuits
Wellenbereiche wave bands	UK 108-88 MHz 2,7-3,4 m MW 1650-510 kHz 182-582 m LW 350-150 kHz 850-2000 m	FM 108-88 Mc/S 2,7-3,4 m short 16-5,9 Mc/S 18,8-51 m BC 1650-510 Kc/S 182-582 m

	Technische Daten	Technical details (USA version)
Eingangsempfindlichkeit sensitivity	UKW: 0,5 $\mu$ V/50 mW / 1 kHz mod. / 12,5 kHz Hub MW: 5... 8 $\mu$ V/50 mW $\left\{ \begin{array}{l} \text{mit 1 kHz,} \\ 30\% \text{ mod.} \end{array} \right.$ LW: 10 $\mu$ V/50 mW	FM: 0,5 $\mu$ V/50 mW short: 12... 15 $\mu$ V/50 mW $\left\{ \begin{array}{l} \text{with 1 kc/s} \\ 30\% \text{ mod.} \end{array} \right.$ BC: 5... 8 $\mu$ V/50 mW
Trennschärfe 1 MHz selectivity 1 Mc/s	schmal 1 : 94 für $\pm$ 9 kHz breit 1 : 23 für $\pm$ 9 kHz	small 1 : 94 for $\pm$ 9 kc/s wide 1 : 23 for $\pm$ 9 kc/s
ZF-Trennschärfe 460 kHz IF-selectivity at 460 kc/s	schmal 1 : 42 für $\pm$ 9 kHz breit 1 : 11 für 9 kHz	small 1 : 42 for $\pm$ 9 kc/s wide 1 : 11 for $\pm$ 9 kc/s
Trennschärfe 98 MHz selectivity at 98 Mc/s	1 : 40 für $\pm$ 300 kHz	1 : 40 for $\pm$ 300 kc/s
ZF-Trennschärfe 10,7 MHz IF-selectivity at 10,7 Mc/s	1 : 35 für $\pm$ 300 kHz	1 : 35 for $\pm$ 300 kc/s
Bandbreite 1 MHz bandwidth 1 Mc/s	schmal $\pm$ 2,45 kHz breit $\pm$ 4,00 kHz	small $\pm$ 2,45 kc/s wide $\pm$ 4,00 kc/s
Bandbreite 98 MHz bandwidth 98 Mc/s	$\pm$ 85 kHz	$\pm$ 85 kc/s
Zwischenfrequenz intermediate-frequency	AM: 460 kHz FM: 10,7 MHz	AM: 460 kc/s FM: 10,7 Mc/s
Saugkreis suction circuit	460 kHz	460 Kc
Gegenkopplung negative reaction	von sek.-Seite des Ausgangs- übertragers nach Kathode der NF-Verstärkerröhre	from secondary of output transformer to cathode of af amplifier tube
Lautstärkeregelung volume control	physiologisch	physiological
Klangfarbenregelung tone control	Musik/Sprache-Schalter Baß- und Höhenanhebung durch getrennte stufenlose Regler	music/speech switch bass and trebles regulated by separate ridgeless controls
Sprechleistung Output energy	2 x 6 Watt	2 x 6 Watts
Anschluß für 2. Lautsprecher socket for second loudspeaker	niederohmig (4,5... 5 Ohm)	low ohm resistance (about 4,5... 5 Ohm)
Stereo-Tonabnehmeranschluß Stereo-pick-up-connection	2x 500 kOhm	2x 500 kOhm
Stereo-Tonbandanschluß Stereo-tape-recorder-connect.	2x 100 kOhm	2x 100 kOhm
Besonderheiten special features	8 Drucktasten, Anzeige für Höhen- und Baßregler, Sprache-Musik-Taste, Band- breitentaste, Stereotaste, Ein- knopf-Duplex-Abstimmung Stereo-Balance-Regler, UKW- Breitbanddipol	8 push buttons, visual bass and trebles control, key for speech and music, key for bandwidth, single knob duplex tuning control, stereo-balance- control, key for stereo and multiplex, FM-Dipol

Lfd. Nr.	Teil part	Schaltbildangabe, Abmessungen, Werte nomenclature, measures, values	Werksbezeichnung factory number	Preis DM
34	Doppeldrehknopf (für rechte Seite) an Chassis 115(A) biknob (for right side) at chassis 115(A)		115(A).10-Tz103	2.—
35	Glasskala für: glas dial for: Chassis 411(R) Chassis 411(R) USA Chassis 115(A) Chassis 115(A) USA		411(R).10-20 411(R)c.10-20 115(A).10-106 115(A)c.10-110	6.—
36	KW-Vorkreissspule primary circuit coil for short wave	L 202	186.12-Tz 3	1.10
37	MW-Vorkreissspule primary circuit coil for BC	L 203	186.12-Tz 4	1.—
38	LW-Vorkreissspule primary circuit coil for long wave	L 207	215(R).12-Tz 15	1.—
39	KW-Oszillatorsppule oscillator coil for short wave	L 205	215(R).12-Tz 6	1.10
40	MW-Oszillatorsppule oscillator coil for BC	L 206	215(R).12-Tz 13	1.—
41	LW-Oszillatorsppule oscillator coil for long wave	L 208	215(R).12-Tz 14	1.—
42	KW-Anhebungsspule accentuation coil for short wave	L 204	186.12-Tz 7	—90
43	Saugkreissspule suction circuit coil	L 201	188.12-Tz 3	1.—
44	Bandfilter band filter	BF 1	411(R).14-Tz1	9.50
45	Bandfilter band filter	BF 2	215(R).14-Tz 2	12.—
46	Bandfilter band filter	BF 3	411(R).14-Tz3	8.—
47	Abgleichkern alignment core	Bei Bestellung die dazugehörige Spule (L...) angeben if ordering, please state for which coil (L...).		—30
48	Multiplex-Teil ohne Röhren multiplex part without tubes		215(R).16	50.50
49	19 kHz-Oszillator oscillator of 19 kc	L 606	215(R).16-Tz 1	5.—
50	38 kHz-Resonanzkreis resonance circuit of 38 kc	L 607	215(R).16-Tz 2	3.50
51	19 kHz-Resonanzkreis resonance circuit of 19 kc	L 601	215(R).16-Tz 3	2.50

Lfd. Nr.	Teil part	Schaltbildangabe, Abmessungen, Werte nomenclature, measures, values	Werksbezeichnung factory number	Preis DM
52	Bandpaßspule band pass coil	L 602	215(R).16-Tz 4	1.90
53	Bandpaßspule band pass coil	L 603	215(R).16-Tz 5	2.50
54	Bandpaßspule band pass coil	L 604	215(R).16-Tz 6	1.90
55	Bandpaßspule band pass coil	L 605	215(R).16-Tz 7	1.90
56	Antriebsrad AM drive wheel AM		MN-119/e	—90
57	Antriebsrad FM drive wheel FM		MN-353/Ausf. I	—90
58	Antriebsrad, verzahnt drive wheel (cog wheel)		215(R).10-15	—30
59	Zahnrad cog wheel		215(R).10-12	—20
60	Seilrolle rope roller		MN-117	—05
61	Zugseil mit Federhebel rope with spring lever		411(R).10-Tz13	—90
62	Steuerhebel control lever		215(R).10-Tz 11	—30
63	Netzkabel mit Stecker (nur für deutsche Ausf.) mains cable with plug (for Germ. version only)		NYF ZA 2 x 0,75 mm²	2.10

**Ersatzteilliste für RF-Chassis METZ 411 (R)/115 (A)**  
**Spare parts list for radio chassis METZ 411 (R)/115 (A)**

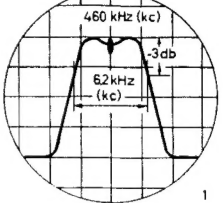
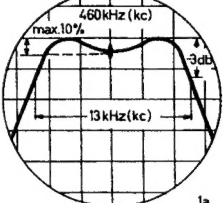
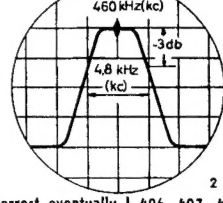
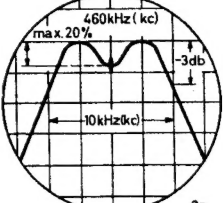
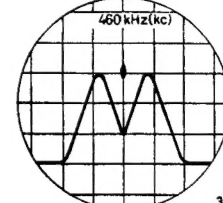
Lfd. Nr.	Teil part	Schaltbildangabe, Abmessungen, Werte nomenclature, measures, values	Werksbezeichnung factory number	Preis DM
1	Selengleichrichter selenium rectifier	GI 901 B 250 C 250	kc 1,3 a 22/8—2,5	10.50
2	Germanium-Diode germanium diode	D 401, 402	A/K 5/105	3.60
3	Germanium-Diode germanium diode	D 403	A/K 5/5 M	1.80
4	Germanium-Diode germanium diode	D 601, 602	A/K 5/61	1.60
5	Feinsicherung fuse	Si 901	1,2 A träge 1,2 amps slow blow	—24
6	Feinsicherung fuse	Si 902	0,6 A träge 0,6 amps slow blow	—24
7	Feinsicherung fuse	Si 903	0,2 A mittelträge 0,2 amps slow blow	—24
8	Widerstand resistor	R 507 180 Ohm/6 W	CZT 0,1,038	—90
9	Widerstand resistor	R 508 390 Ohm/6 W	OZ 00.025	—90
10	Widerstand resistor	R 521, 522 2,2 kOhm/2 W	ZWD 2 RWJ	—90
11	VDR-Widerstand resistor	R 587, 588	OV 100/250 E	1.20
12	Elko electrolytic capacitor	C 561/562/563 35 $\phi$ x 75 mm	50+50+50 uF 350/385 V BV 49 100	7.20
13	Elko electrolytic capacitor	C 551, 552 12 $\phi$ mm	8 uF 350/385 V DIN 41332 Kl. 2	2.55
14	Niedervoltelko electrolytic low-volt capacitor	C 553, 554, 555 6,5 $\phi$ x 12 mm	25 uF 6/8 V DIN 41332 Kl. 2	1.30
15	Niedervolt-Elko electrolytic low-volt capacitor (Lautstärke und Balance)	C 559, 560 8,5 $\phi$ x 20 mm	100 uF 12/15 V DIN 41332 Kl. 2	2.40
16	Potentiometer potentiometer	R 596, 597, 598, 599	411(R).2-1	12.60
17	Potentiometer (Diskant) potentiometer (treble)	R 591, 592	411(R).2-2	6.—
18	Potentiometer (Baß) potentiometer (bass)	R 593, 594	411(R).2-2	6.—
19	Drehkondensator variable capacitor	C 229/230	215(R).3-1	9.—
20	UKW-Teil ohne Röhre FM-part without tube		215(R).13	28.—

Lfd. Nr.	Teil part	Schaltbildangabe, Abmessungen, Werte nomenclature, measures, values	Werksbezeichnung factory number	Preis DM
21	Netztrafo für: Chassis 411(R) Chassis 115(A) power transformer for: Chassis 411(R) USA Chassis 115(A) USA		411(R).17-Tz1 115(A).17-Tz101  411(R)c.17-Tz1 115(A)c.17-Tz102	31.—  27.—
22	Ausgangsübertrager output transformer		411(R).19-Tz2	17.50
23	Drucktastenaggregat für: push button unit for: Chassis 411(R) Chassis 115(A)		411(R).12-Tz1 Ausf. I 411(R). 12-Tz 1 Ausf. II	52.— 52.—
24	Tastenkörper für Drucktastenaggregat Chassis 411(R) knob for push button unit		411(R).12-Tz1 Ausf. I	—15
25	Tastenkörper für Drucktastenaggregat Chassis 115(A) knob for push button unit chassis 115(A)		115(A).12-101	—15
26	Zusatz-Schiebeschalter für FM-Taste booster slide switch for FM push button		215(R).12-Tz2	1.60
27	Rändelrad für Tonregler an Chassis 411(R) knurled wheel (for Bass and Treble) at chassis 411(R)		188.10-35/Ausf. II	—35
28	Drehknopf, klein (links und rechts) an Chassis 411(R) knob, small (left and right side) at chassis 411(R)		10 832-02-132/1118 k OKW	1.20
29	Drehknopf, groß (für linke Achse) an Chassis 411(R) 8 mm Bohrung knob, big (for left axle) at chassis 411(R) 8 mm drilling		10 833-03-132/1118 k OKW	1.20
30	Drehknopf, groß (für rechte Achse) an Chassis 411(R) 6 mm Bohrung knob, big (for right axle) at chassis 411(R) 6 mm drilling		10 833-03-132/1118 k OKW	1.20
31	Rändelrad für Tonregler an Chassis 115(A) knurled wheel (for Bass and Treble) at chassis 115(A)		115 (A). 12-103	—35
32	Drehknopf, klein (links) an Chassis 115(A) knob, small (for left side) at chassis 115(A)		115(A).10-101	—90
33	Drehknopf, groß (für linke Achse) an Chassis 115(A) knob, big (for left axle) at chassis 115(A)		115(A).10-107	1.10

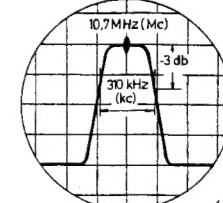
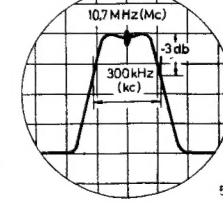
Alignment Instructions  
for Radio Chassis METZ-411 (R) / 115 (A)

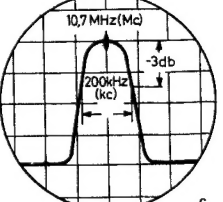
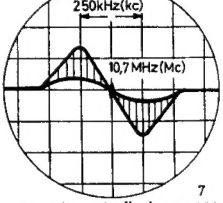
Alignment Process	Part of circuit	Setting at Receiver			Generator			Indicator Set (V-Amplifier)** (Omt-Outputmeter) (Ground connection see K 50, point 10)			Preparation of Alignment process		Tuning		Curves and Remarks
		push button depressed	band width	Position of pointer	Setting of Frequency in Cycles	Modulation	hot end to	ground to	kind	sensi- bility	conec- tion	spot (marked in diagram)	procedure	Circuit (marked in diagram)	Indication

IF-Alignment for AM-Reception (short-BC-long)

1	General	BC	small	about 1 Mc	460 Kc R <sub>1</sub> 60 Ohm	wobbl.	—	—	V	about 5 mV	over 20 K to 21	—	—	—	—	
2	IF-Filter after R6 402	"	"	"	"	"	BF 1 point 6	BF 1 point 9	"	"	"	L 407 L 408	detune	L 408	frequency and maximum	
3	"	"	"	"	"	"	"	"	"	"	"	L 406	detune	L 407	frequency, maximum and symmetrie	
3a	"	"	wide	"	"	"	"	"	"	"	"	L 406		L 407 L 408	correct eventually and sym.	
4	IF-Filter after R6 401	"	small	"	"	"	button contact m 2	L R6 401	"	"	"	L 405	detune	L 406	frequency and maximum	
5	"	"	"	"	"	"	"	"	"	"	"	—	—	L 405	frequency, maximum and symmetrie	correct eventually L 406, 407, 408 on symmetrie
5a	"	"	wide	"	"	"	"	"	"	"	"	—	—	L 405 L 406	correct eventually and sym.	
6	Suction circuit	BC	small	about 1 Mc	460 kc R <sub>1</sub> 60 Ohm + 400 Ohm + 200 pF	wobbl.	aerial bushing	ground bushing	V	about 5 mV	over 20 K to 21	—	—	L 201	maximum in the middle of curve	

IF-Alignment for FM-Reception

7	IF-Alignment pass curve General	FM	—	about 90 Mc	10,7 Mc R <sub>1</sub> 60 Ohm	wobbl.	—	—	V	about 5 mV	over 20 K to 27/1	27/1-27/2	solder of connection	—	—	
8	IF-Filter after R6 402	"	—	"	"	"	BF 1 point 8	R6 402 center	"	"	"	L 403 L 402	detune	L 404	frequency and maximum	
9	"	"	—	"	"	"	"	"	"	"	"	L 402	detune	L 403	frequency, maximum and symmetrie	
10	IF-Filter after R6 401	"	—	"	"	"	button contact m 2	R6 401 center	"	"	"	L 401 L 402	detune	L 402	frequency and maximum	
11	"	"	—	"	"	"	"	"	"	"	"	L 102	detune	L 401	frequency, maximum and symmetrie	

12	IF-Filter after R6 101	"	—	"	"	"	"	"	"	"	over coupling hood to anode 2 R6 101	FM -part ground	"	"	"	L 101	detune	L 102	frequency and maximum	
13	"	"	—	"	"	"	"	"	"	"	"	"	"	"	"	"	"	L 101	frequency, maximum and symmetrie	
14	Ratio-Alignment	"	—	"	"	"	wobbl. + AM 80 %	"	"	"	"	"	over 20 K to 22	27/1 and 27/2	solder off connection	"	"	L 404	correct on symmetrie, S-curve of AM-zero point in center of curve	

HF-Alignment for FM-Reception

15	General	—	small and speech	—	Generator R <sub>1</sub> 60 Ohm	AM 30% 1 Kc	—	ground bushing	Omt 50 mW	loudsp.	—	—	—	—	—	—	—	—	—	Please repeat several times the alignment between the higher and lower frequencies within one range.
16	Osc. SW	SW	"	0 mm	5,9 Mc	"	aerial over 400 Ohm 200 p	"	"	"	"	"	"	"	"	"	"	L 205	frequency and maximum	0 mm corresponds to turned in variable capacitor, outmost right on the glass dial.
17	Precircuit SW	"	"	24,5 mm	6,35 Mc	"	"	"	"	"	"	"	"	"	"	"	"	L 202	"	
18	Osc. SW	"	"	200,5 mm	16,0 Mc	"	"	"	"	"	"	"	"	"	"	"	"	C 218	"	200,5 mm corresponds to turned-out variable capacitor, outmost left on the glass dial.
19	Precircuit SW	"	"	176,5 mm	14,8 Mc	"	"	"	"	"	"	"	"	"	"	"	"	C 222	"	
20	Osc. Bc	BC	"	36,0 mm	580 Kc	"	"	"	"	"	"	"	"	"	"	"	"	L 206	"	
21	Precircuit BC	"	"	36,0 mm	580 Kc	"	"	"	"	"	"	"	"	"	"	"	"	L 203	"	
22	Osc. BC	"	"	177 mm	1480 Kc	"	"	"	"	"	"	"	"	"	"	"	"	C 220	"	
23	Precircuit BC	"	"	177 mm	1480 Kc	"	"	"	"	"	"	"	"	"	"	"	"	C 224	"	
24	Osc. LW	LW	"	0 mm	150 Kc	"	"	"	"	"	"	"	"	"	"	"	"	L 208	"	
25	Precircuit LW	"	"	30,5 mm	165 Kc	"	"	"	"	"	"	"	"	"	"	"	"	L 207	"	
26	Osc. LW	"	"	200,5 mm	350 Kc	"	"	"	"	"	"	"	"	"	"	"	"	C 228	"	
27	Precircuit LW	"	"	176 mm	330 Kc	"	"	"	"	"	"	"	"	"	"	"	"	C 226	"	

HF-Alignment for FM-Reception

28	FM-part	FM	"	87 mm	96 Mc	40 Kc Hub 1000 cycles mod.	dipol-bushings sym. R1 300 Ohm	—	Omt 50 mW	loudsp.	—	—	—	—	—	—	—	C 163 C 157	frequency and maximum	
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Explanation

The calibration marks of the respective wave bands are being marked by points.  
Select amplification and HF-voltage in such a way, that a faint noise-amplitude (with 1-11 about 10% and with 12-13 about 20%) can be recognized)  
\* — See diagram, printed circuit plate and view of the unit.  
\*\* — V-Amplifier of indication, eventually with Oscillograph, Omt — Outputmeter 4 Ohm 50 mW

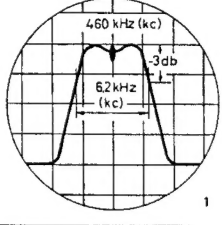
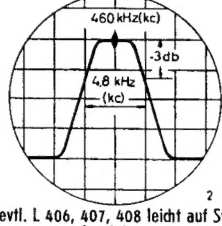
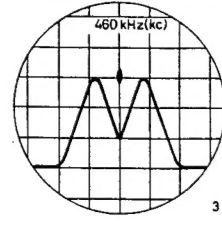
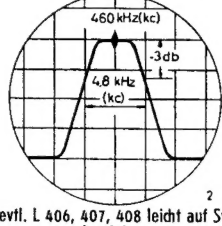
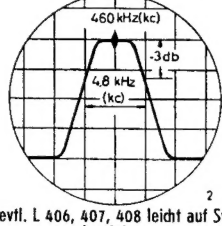
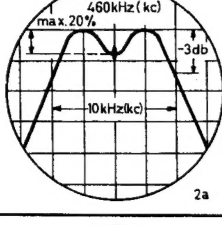
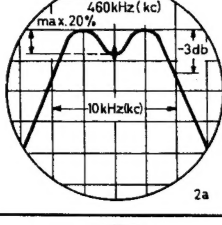


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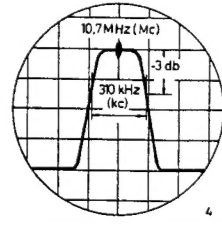
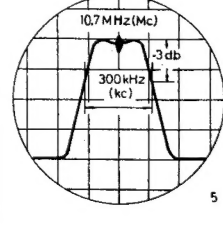
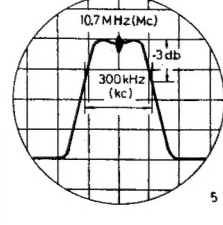
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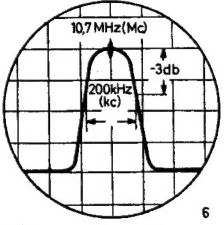
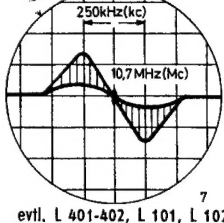
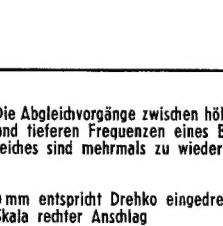
Abgleichvorgang	Schaltungsteil			Einstellung am Empfänger			Generator				Anzeigegerät (V-Verstärker) ** (Masseanschluss siehe K 50, Punkt 10)				Vorbereitung des Abgleichvorganges		Abstimmung		Kurvenform und Bemerkungen:
	Gedrückte Taste	Bandbreite	Zeigerstellung	Frequenz-einstellung (Hz)	Modulation	Anschaltung (im Schaltbild bez.)		Art	Empfindlichkeit	Anschal.	Ort (im Schaltbild bezeichnet)	Art	Kreis (im Schaltbild bezeichnet)	Anzeige					
						Heißes Ende an	Masse an												

### ZF-Abgleich für AM-Empfang

1	Allgemein	MW	schmal	ca. 1 MHz	460 kHz R <sub>1</sub> 60 Ohm	wobbl.	—	—	V	ca. 5 mV über 20 k an 21	—	—	—	—	—	—	—	—	—	
2	ZF-Filter nach R6 402	"	"	"	"	"	BF 1 Punkt 6	BF 1 Punkt 9	"	"	"	"	L 407 L 408	verstimmen	L 408	Frequenz u. Max.	"	"	"	
3	"	"	"	"	"	"	"	"	"	"	"	"	L 406	verstimmen	L 407	Frequenz, Maximum u. Symmetrie	"	"	"	
3a	"	"	breit	"	"	"	"	"	"	"	"	"	L 406	verstimmen	L 407 L 408	ev. leicht auf Symmetrie korrigieren	"	"	"	
4	ZF-Filter nach R6 401	"	schmal	"	"	"	Taste Kontakt m 2	L R6 401	"	"	"	"	L 405	verstimmen	L 406	Frequenz u. Max.	"	"	"	
5	"	"	"	"	"	"	"	"	"	"	"	"	—	—	L 405	Frequenz, Maximum u. Symmetrie	"	"	"	
5a	"	"	breit	"	"	"	"	"	"	"	"	"	L 405 L 406	ev. leicht auf Symmetrie korrigieren	"	"	"	"	"	
6	Saugkreis	MW	schmal	ca. 1 MHz	460 kHz R <sub>1</sub> 60 Ohm + 400 Ohm + 200 pF	wobbl.	Antenne Buchse	Erd-Buchse	V	cirka 5 mV über 20 k an 21	—	—	L 201	Maximum in der Kurvenmitte	"	"	"	"	"	

### ZF-Abgleich für FM-Empfang

7	ZF-Abgleich Durchlaufkurve Allgemein	UKW	—	ca. 90 MHz	10,7 MHz R <sub>1</sub> 60 Ohm	wobbl.	—	—	V	ca. 5 mV über 20 k an 27/1	27/1-27/2	Verbindung öffnen	—	—	—	—	—	—	—	
8	ZF-Filter nach R6 402	"	—	"	"	"	BF 1 Punkt 8	R6 402 Mitte	"	"	"	"	L 403 L 402	verstimmen	L 404	Frequenz u. Max.	"	"	"	
9	"	"	—	"	"	"	"	"	"	"	"	"	L 402	verstimmen	L 403	Frequenz, Maximum u. Symmetrie	"	"	"	
10	ZF-Filter nach R6 401	"	—	"	"	"	Taste Kontakt m 2	R6 401 Mitte	"	"	"	"	L 401 L 102	verstimmen	L 402	Frequenz u. Max.	"	"	"	
11	"	"	—	"	"	"	"	"	"	"	"	"	L 102	verstimmen	L 401	Frequenz, Maximum u. Symmetrie	"	"	"	

12	ZF-Filter nach R6 101	"	—	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
13	"	"	—	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
14	Ratio-Abgleich	"	—	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	

### HF-Abgleich für AM-Empfang

15	Allgemein	—	schmal und Sprache	—	Generator R1-60 Ohm	AM 30% 1 kHz	—	Erd-buchse	Out.	50 mW Lautsp.	—	—	—	—	—	—	—	—	—	Die Abgleichvorgänge zwischen höheren und tieferen Frequenzen eines Bereiches sind mehrmals zu wiederholen
16	Osz. KW	KW	"	0 mm	5,9 MHz	"	Antenne über 400 Ohm 200 p	"	"	"	"	"	"	"	"	"	"	"	"	0 mm entspricht Drehko eingedreht, Skala rechter Anschlag
17	Vorkreis KW	"	"	24,5 mm	6,35 MHz	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
18	Osz. KW	"	"	200,5 mm	16 MHz	"	"	"	"	"	"	"	"	"	"	"	"	"	"	200,5 mm entspricht Drehko ausgedreht, Skala linker Anschlag.
19	Vorkreis KW	"	"	176,5 mm	14,8 MHz	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
20	Osz. MW	MW	"	36,0 mm	580 kHz	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
21	VK MW	"	"	36,0 mm	580 kHz	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
22	Osz. MW	"	"	177 mm	1480 kHz	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
23	VK MW	"	"	177 mm	1480 kHz	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
24	Osz. LW	LW	"	0 mm	150 kHz	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
25	VK LW	"	"	30,5 mm	165 kHz	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
26	Osz. LW	"	"	200,5 mm	350 kHz	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
27	VK LW	"	"	176 mm	330 kHz	"	"	"	"	"	"	"	"	"	"	"	"	"	"	

### HF-Abgleich für FM-Empfang

28	UK-Teil	UK	"	87 mm	96 MHz	40 kHz Hub 1000 Hz mod.	Dipolbuchsen sym. R1 300 Ohm	Out.	50 mW Lautsp.	—	—	—	—	—	—	—	—	—	—	C 163 C 157 Frequenz u. Max.
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### Erklärungen

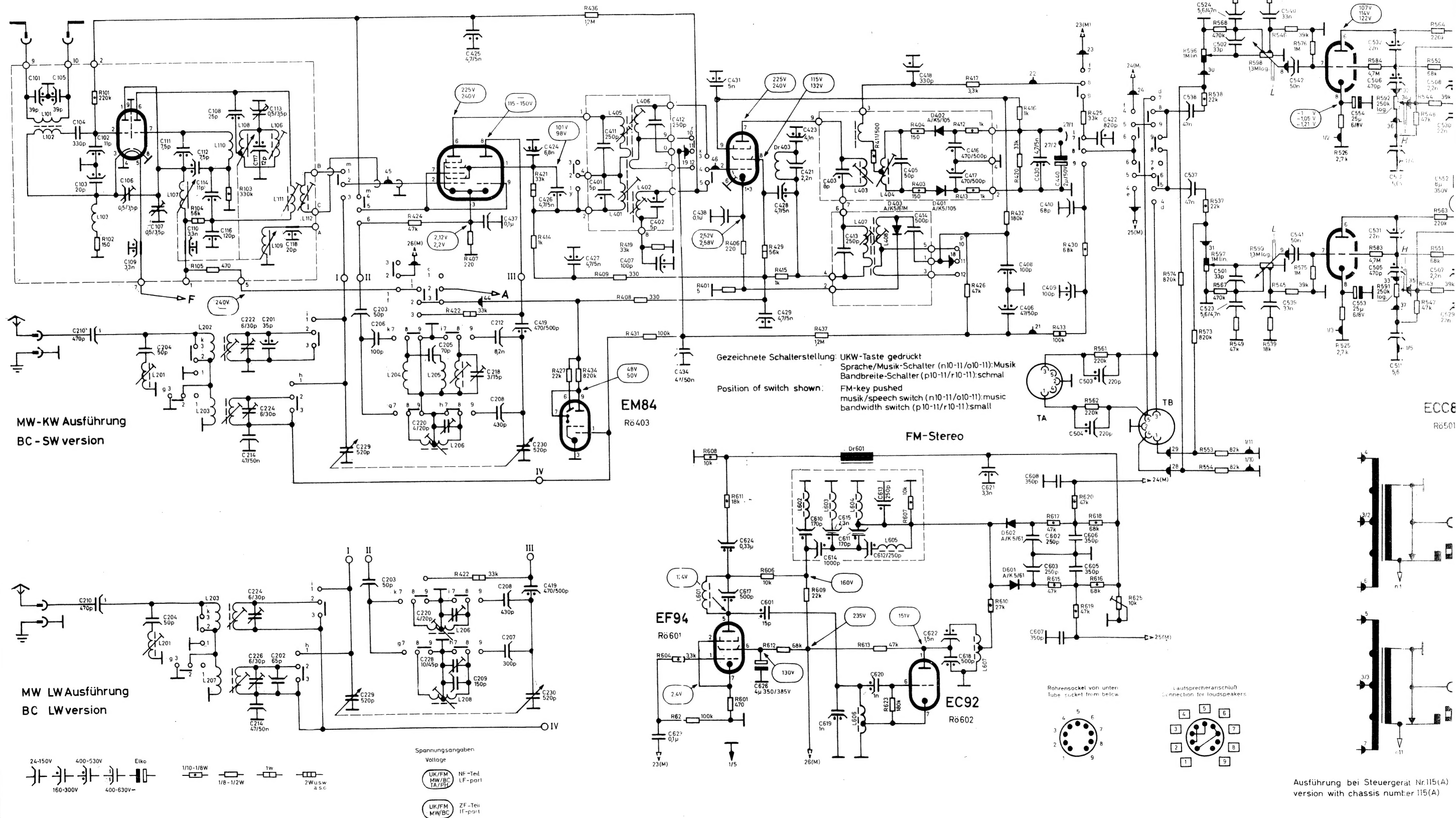
Die Eichmarken sind im jeweiligen Wellenbereich durch Punkte markiert.  
 Verstärkung und HF-Spannung so wählen, daß schwache Rauschamplitude (bei 1-11 rund 10% bei 12-13 rund 20%) erkennbar bleibt.  
 \* — Siehe Schaltbild, Leiterplatte und Geräteansicht  
 \*\* — V-Anzeigeverstärker ggf. mit Oszillograph Out — Outputmeter 40 Ohm 50 mW

ECC85  
Rö101

ECH81  
Rö401

EF85  
Rö402

ECC8  
Rö502



EF85  
Rö 402

ECC83  
Rö502

ECC83  
Rö503

ELL80  
Rö 504

rechter Kanal  
right channel

linker Kanal  
left channel

**Schaltbild für**  
**Circuit Diagram for** **METZ 411/115**  
Änderungen vorbehalten!  
Subject to changes!

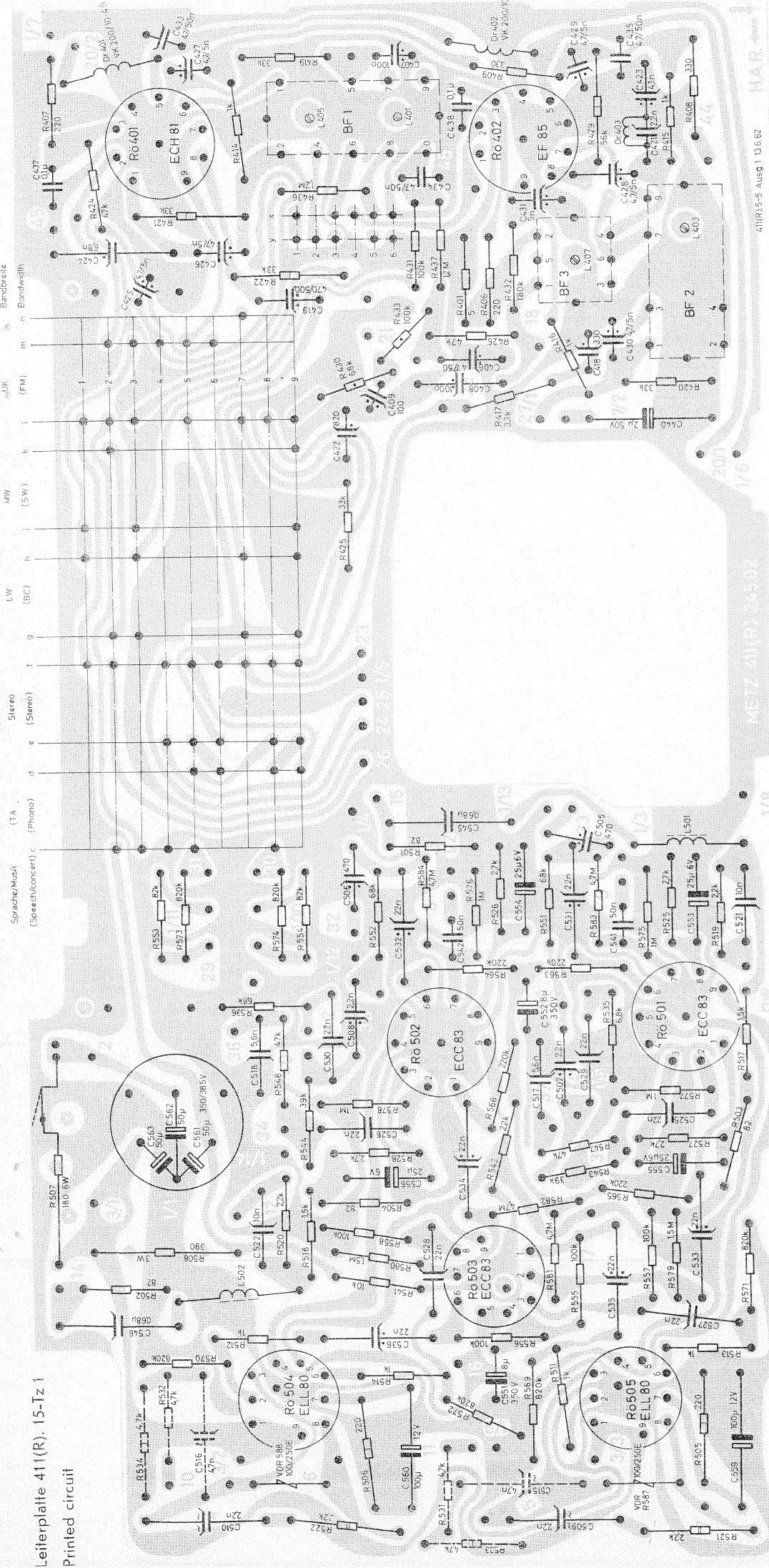
Ausführung bei Steuergerät Nr.115(A)  
version with chassis number 115(A)



Leiterplatte 411(R), 15-Tz 1

Printed circuit

Bandbreite (FM) m n Bandwidth (SW) h i Stereo e d (TA) (Phono) c



METZ 411(R) 24502

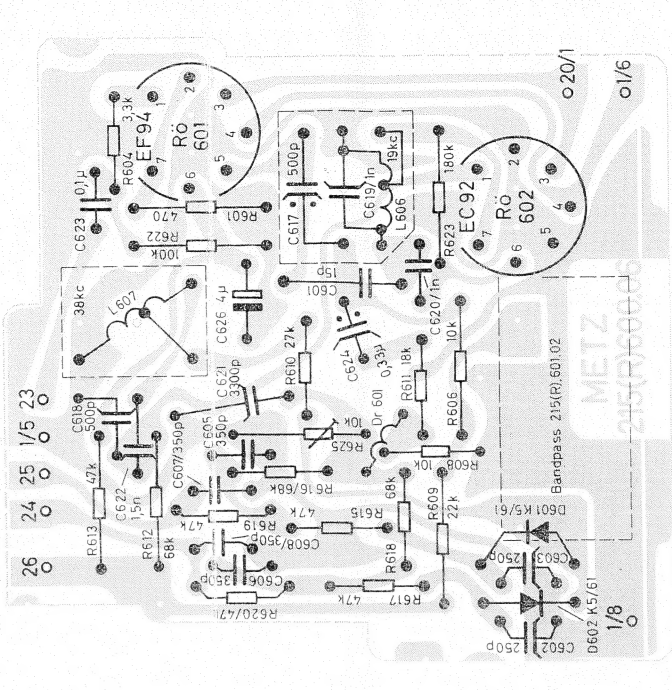
1/8

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Leiterplatte 215(R), 15-Tz 3

Printed circuit



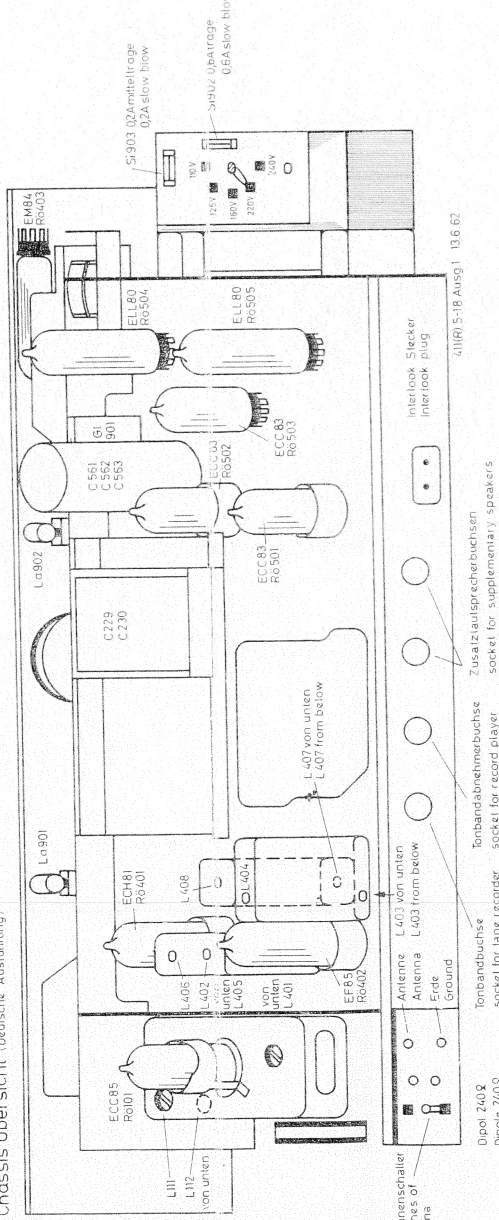
METZ 215(R) 60102

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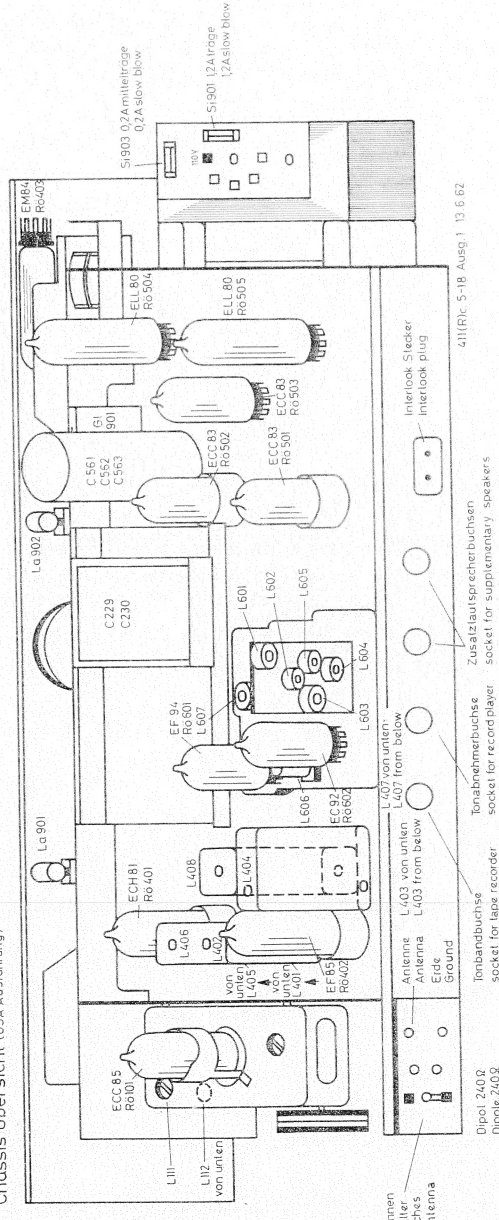
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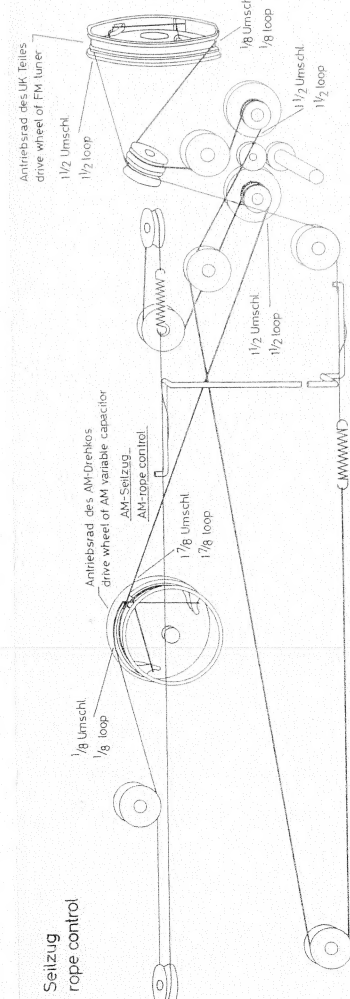
Chassis survey (German version)



Chassis survey (USA version)



Seilzug rope control



Die Seilzüge sind so abgemessen, daß die Zuglängen um 4,6 mm gesamt sind. The length of the rope must be measured in such a way that the springs in tension have a size between 4,6 and 6 millimeters.

411(R) 15-Tz 1

1/8

1/6

1/6

Benennung	Dipol RE-240	g) EF 85	g) EF 94	g) 12ECC83	g) 12ECC83	Lausprecher-4512
Remarks						loudspeaker-4512
Spannung	0,5 µV 125kHz Hub	37 µV	14 mV	10 mV	500 mV	0,5 V
Voltage						
Bandbreite	Kurvenbild 5,7	Kurvenbild 4	Kurvenbild 4	Kurvenbild 4	Kurvenbild 4	Kurvenbild 4
Bandwidth						

